

SINC - LINK

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THE HACKER SCARE
by John T. Nguyen
Part 3

"As you are surveying the dark and misty swamp you come across what appears to be a small cave. You light a torch and enter. You have walked several hundred feet when you stumble into a bright blue portal... With a sudden burst of light and a loud explosion you are swept into... DRAGONFIRE...PRESS ANY KEY IF YOU DARE" (Sandza 17).

Dragonfire is a treasure house of hacker information, but before you can get any information, you must give Dragonfire your name, home city, and phone number. One section of the bulletin board is called Phreakenstein's Lair, and within this area, one can find a list of ID numbers for stealing service from AT&T and other phone networks. Another section, called Ranger's Lodge, is filled with phone numbers and passwords for government, university, and corporate computers. Inexperienced hackers usually go to Ranger's Lodge instead of looking for phone numbers themselves. The phone number and access code of these underground bulletin boards are closely guarded secrets, and according to Ian Murphy, a former hacker, now a security consultant-----:

"The bulletin boards out there have far better security than most corporate mainframes, and that's pretty frightening and astounding"

How did the exploits of these hackers come out into the open? Two main events happened which brought attention to the hackers. The first main event which helped trigger the "Hacker Scare" was the release of the movie "Wargames" in 1983. "Wargames is a movie about a teenager who broke into the U.S. defence department computer and nearly set off World War III with a game called thermonuclear war on the system. As a result of the movie, many, many more teenagers decided to try their hand at hacking because of the glamour of the situation created in the movie. The movie also caused people to question the security of our nation's defence computers. This fear, however, can be put aside according to experts who explained that the computer systems at the North American Air Defence Command (NORAD) are totally isolated from commercial telephone lines and are therefore not within reach of hackers (Alpem 48).

Even so, Defence Secretary, Caspar Weinberger ordered a high-level investigation of computer security at U.S. military and intelligence installations, and the National Communications Security Committee investigated the computer security at the treasury department.

In late July of 1983, a second event occurred which triggered another "hacker scare". A group of teenagers calling themselves the 414's were arrested on charges

of having broken into more than 60 business and government computer systems in the U.S. and Canada, including computers at Los Alamos National Laboratory, Security Pacific National Bank in Los Angeles, and New York's Memorial Sloan-Kettering Cancer Center (Marbach 42).

These hackers had made the bad mistake of erasing a few files in an attempt to cover up their tracks. The seriousness of their actions lay in the fact that the files were in a computer at the Sloan-Kettering Cancer Research Center. As a result of these two events, government and corporate agencies looked even deeper into their security problems, and writers began to editorialize about hackers and their exploits. At this point the "hacker scare" was well on its way to becoming a new fear of the 80's.

The period from 1982 to 1985, in a way, is a romantic period; romantic because it allowed the "underdog" to rise up to the top and defeat big government and big industry. The media fell in love with this idea and glamorized the "underdogs" in every way possible. "It's an immensely seductive myth, that a kid with a little computer can bring powerful institutions to its knees." (quoted in Elmer DeWitt 65). This idea pervaded the period of the "hacker scare", and according to the computer scientist Jacques Vallee-----:

"On a subconscious level, we see the kids break into these big monsters and avenge us for our loss of privacy, individuality, whatever we're afraid of losing to computers." (Marbach 48)

Although on the surface, some of us might admonish the hackers for what they did, maybe deep inside, we might have been secretly on their side all along.

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SincBits

Ian Robertson

DATES - This column is being written using TASWORD 128 on the Spectrum 128 (a truly GREAT computer). Of all the WP's that I have, this is (presently) my favourite. Talk about speed! You might also note that the print is different this time. This is courtesy of a STAR NX-10 printer. A Christmas present from me, to me.

After waiting one year for SofTek to honour an order for their "WRITER" and "ARTIST II", I am just about ready to write off the #28.00 (pounds sterling) as a bad investment. Remember that, should you desire to place an order directly with them. Both the programs are advertised by "Thoughts & Crosses" (they have never let me down), and they always ship from stock. A fifth and last letter will be sent to SofTek.

SPECTRUM - Last summer someone asking me about MUSIC on the Spectrum. Since that question was asked the following major items have been marketed, (a) SPECDRUM, an amazing digital drum system which now has three additional "kits", (b) RAM MUSIC MACHINE, a combination SOUND SAMPLER and MIDI INTERFACE (for connection to a keyboard), and (c) THE CHEETAH MKS MIDI KEYBOARD. In other words, if you are interested in composing electronic music, the Spectrum is a definite contender. Of the three items mentioned, I use SpecDrum. Highly recommended.

MULTIFACE ONE is also "new and improved". It now has its first piece of software, written specifically for it. More on that in my next column. It should be received and in use by that time. I should also have the Kempston eeprom from them by that time, and be able to do NMI dumps with the Kempston Disk Interface connected to MF1.

A company in Holland is marketing a VIDEO DIGITISER. The company is "Data-Skip" and their product is receiving quite good reviews. So far I do not know anyone that has purchased this item. If anyone has it I would be very interested in their comments.

TS2068 - The big news for our "standard computer" concerns the OLIGER DISK SYSTEM. Two major improvements for this item. The first is from John Oliger. He has finished v2.0 of his DOS. There are a couple of areas which require fine tuning (in the MOVE and ERASE command areas), but it is still a great DOS should you require Spectrum compatibility. The other major item is from CUYAHOGA VALLEY SOFTWARE WORKS, 615 SCHOOL AVE., CUYAHOGA FALLS, OHIO 44221. This item comes on two disks and is a version of SPDOS which boots into the Oliger system and allows the RAMEX (Millenia K) SPDOS commands to be used. For example; PRINT #4: LOAD "Filename". Even if this DOS is memory intensive, it is still a great DOS. It sells for \$25.00 (US) and has the blessing of ABBEYDALE DESIGNERS, who created SPDOS. A royalty is paid to Abbeydale, so it is all above board. Since I have both systems, I think that I have died and gone to Mcintosh in the sky. For all you SPDOS users there is a BIG bonus - their version of "copysys" is now completely transferrable to any disk. Hats off to the CUYAHOGA GROUP.

QL - It took the allure of "a \$99.00(US) kit" to get me to take the plunge. Many thanks to Doug Dewey for taking the time to organize that massive effort, and I sincerely hope everyone sends in the requested \$10.00 to cover his extra costs.

To date my system comprises of - (a) the assembled (without a hitch) kit, (b) an internal 512k expansion board from INPHOLINK LTD., FRONT STREET WEST, BEDLINGTON, NORTHUMBERLAND, NE22 5UB, ENGLAND, the cost was \$69.30 pounds sterling and they take VISA, (c) an internal battery backed clock, from SHARP'S INC., (d) an RS232 to Centronics printer interface from Miracle Systems Ltd., and (e) selected software, including v2.3 of the 4 Psion programs. Yes I did buy two games - Psion Chess and Psion Matchpoint.

The 512k board (called the QL640) is easily installed, if you do NOT have the Korean QL board which has all those .1 mfd axial monolithic capacitors installed in the 128k RAM area. I had to remove them and replace them with radial .1 mfd monolithics, which I installed on the bottom of the board. There is also a small "klunge board", approx. 1" x 1" installed in the 128k RAM area and held in place with four dabs of silicon cement. This too has been moved out of the way. None of these items are in the British QL, therefore no instructions are included for their displacement. All the software tried to date works with it. I have it on good authority that internal RAM does NOT run as fast as external RAM, especially in the operation of QUILL, etc. So if speed is of the essence go external and pay the extra cost.

A disk interface is conspicuous by its absence (considering that I have a total of five for the 2068 and the Speccy). This is by design, as I am presently evaluating the "specs" for the two DDI's under consideration. In the meantime, using md's is no hardship for me, as I actually like them after having used them with the Speccy for the past 19 months.

Although the QL is "officially" a dead computer, there still are a few good magazines available. The three that I subscribe to are (a) QUANTA, published by the Independent QL Users Group in the UK, (b) QUANTUM LEVELS, published by Tom Woods, and (c) QL WORLD, a UK magazine similar to Sinclair User in appearance but at least 150 times better, and it is obtainable from SHARP'S INC. cheaper than if you subscribed directly. There are probably other magazines and newsletters available, but since I have only had a QL for 3 weeks they will have to make themselves known to me. All I know is that I could not imagine QLing without the above!

A company in Italy is marketing a Video Digitiser. A sample of what it can do was published in the Dec. issue of Quanta. Look out Atari, Commodore and Apple!

One last item; HAS ANYONE GOT THE A FIX THAT CURES THE SCREEN BOUNCE/SHIMMER, WHILE THE QL IS IN THE MONITOR MODE ? I have added a second 7805 regulator and a .1 mfd tantalum cap. across the input of one of the regulators - to no avail, the screen on my Zenith 1220 is still lousy. It is GREAT in the TV mode though. This problem HAS TO BE SOLVED!

ZX81 PROGRAMMING

There is something about this machine which makes us users resist the Spectrum's lure of sound and colour or the QL's memory and microdrives.

It doesn't take long before the limitations of Basic cause us to give up or progress into machine code. What I hope to do is give a series of machine code routines which can be used by expert and novice alike to improve the 81's speed and performance.

What I have is a loader program with a massive REM at the start, this Rem contains a suite of programs which perform such essential tasks as a variety of Inputs, Prints, Pauses, Scrolls and screen effects. By keeping careful notes of register values, I then use those which apply to whatever program I am writing.

I hope to give you a similar utility which perhaps other readers may like to contribute to, so building into a program which even QLers will envy!

To simplify for new 81ers, Machine code is operating the computer processor directly by giving it instructions in its own language — numbers.

We have to store these numbers somewhere and the most convenient place is in the first line of the program which is made a REM line. This means that because it is a REM the computer ignores all the characters which follow it until directed there by a specific USR instructions.

The USR function needs to be followed by the memory address where the processor will find the first machine code instruction and this will be an address in the REM.

We know from the manual that the first address that follows the line number and REM code is 16514 and this is often the address at which we begin our machine code.

Unless you have an assembler you have to input the numbers which are usually given in HEX,

**Ray Elder presents a
forum of news, hints,
tips and advice
exclusively for ZX81
users.**

These two pages are from the ZX COMPUTING MONTHLY magazine. Subscriptions are 18 Pounds (Surface Mail Rate). That's about \$37 (CAN) for 12 issues. Covers all Sinclair computers. Make Postal note payable to

a system of counting in groups of 16, and get them into the memory locations in the REM.

For this we use a LOADER program, a very simple one which I use as the basis of my master program is given in FIG 1, type it and save it.

■ ■ ■ ■ ■ ■ ■ ■ ■ ■

FIG 1

```
9000 PRINT "ADDRESS TO START ?";
9010 INPUT A
9020 PRINT A
9030 LET A$=""
9040 LET X=0
9050 IF A$="" THEN INPUT A$
9060 IF A$="S" THEN STOP
9070 IF X=0 THEN SCROLL
9080 IF X=0 THEN PRINT A;" ";
9090 PRINT A$( TO 2);" ";
9100 POKE A,16*CODE
A$+CODE A$(2)-476
9110 LET A=A+1
9120 LET A$=A$(3 TO )
9130 LET X=X+1
9140 IF X=6 THEN GOTO 9040
9150 GOTO 9050
```

■ ■ ■ ■ ■ ■ ■ ■ ■ ■

Before we can put numbers into the REM memory we have to claim that memory for our use, and we do that by following the 1 REM by as many characters as we need. Problems arise when you need around 1000 characters as I am about to suggest! One heck of a lot of time, especially as the 81's entry speed slows as the line length increases.

As computers are supposed to make life easy, our first program might as well create our REM for us. We still have to type in a few characters, but typing 1 REM followed by 96 dots is a lot easier than 1000 dots! Add the REM to the loader prog.

Now we can RUN our loader program and it will ask us to enter the start address. This is, surprise, surprise, 16514

The program is now waiting for our numbers, type in each line of FIG 2 one line at a time, pressing ENTER at the end of each line. Note each line consists of 12 characters with no spaces between them.

Finally add the lines in FIG 3 to the loader program and SAVE it. This should become your initial program and will be useful for entering other machine code programs which you may find in these pages or elsewhere.

■ ■ ■ ■ ■ ■ ■ ■ ■ ■

FIG 2

```
D60BCD230F01
06002A8240E5
09444D2A2940
09222940210C
403E095E2356
D5EB09EB722B
7323233D2803
D118EEE1E501
E240A7ED4244
4DE1EDB821E3
403600233602
23C103037123
702336EA080B
23110100EB19
EB361BEDB036
7534CD2B0FC9
```

FIG 3

```
2 REM
4 PRINT "REM LENGTH ?"
5 INPUT N
6 POKE 16514,N-256*INT (N/256)
7 POKE 16515,INT (N/256)
8 RAND USR 16516
9 STOP
```

■ ■ ■ ■ ■ ■ ■ ■ ■ ■

Note 2 REM. This is a safety line and MUST be included even though it has no apparent purpose.

Having Saved the program several times (just in case!) we will now RUN it, and the message REM LENGTH? pops up. We want an all purpose REM and 1000 characters seems plenty, so enter 1000.

If all is well, a flicker and on listing, a massive line of dots...

Delete the lines, one at a time by entering their line numbers, 4, 5, 6, 7, 8 and 9. SAVE this on yet another tape for this will become our master utility program with the first 'real' routine next time.

Hints

Mark Baldwin of Barnsley has been squeezing beeping sounds out of his 81. Turn the TV volume up, put the 81 into FAST mode and type in:
FAST
RAND USR B21 (to B29)
The result says Mark is a whole range of different notes.

New Game

Pooter Games have just brought out Pooter Puzzler No 2 a collection of seven teasing puzzles which sells for £2.95. Information from: Pooter Games, 24 Parsloes Avenue, Dagenham, RM9 5NX.

Argus Specialist Publications Ltd. Send to: INFONET LTD, Times House, 179 The Marlowes, Hemel Hamstead, Herts. HP1 1BB

SINC-LINK

Ray Elder with more advice for the ZX81 user on building machine code routines.

Last month we created a program to create a giant REM to hold our collection of machine code routines which I hope YOU will help me to develop.

Meanwhile I hope experienced users will excuse me as I realised that we often take for granted things which may confuse relative newcomers, so I will recap on a few well known bits and pieces from time to time.

The ZX81 has a special area of RAM memory which it looks at 50 times a second and transfers to the TV screen, this is called the display file and it has one disadvantage and one advantage when compared to the Spectrum (ignoring colour and hi-res that is).

The disadvantage is that it moves around in memory whilst the Spectrum's always stays where it is, and the advantage is that you can POKE characters directly to it from BASIC or machine code which you can't on the Spectrum.

To find out where the display file memory is at any particular time Sir Clive supplied us with two addresses which will tell us its start address MINUS one. These are addresses 16396 and 16397 and a simple program to use this might be as follows:

```
10 LET A=1+PEEK 16396+256*PEEK 16397
20 POKE A,128
```

And inverse space should appear in the top left corner of the screen, 128 being the code for an inverse space!

Now we've found it, we must know how it is laid out and for this I am presuming that 16K is being used, 1K users-hard luck!

Each line consist of 32 characters PLUS a special marker for the "end of line", the machine was designed like this to maximise the efficiency when only using 1K, and in fact using

the built in SCROLL function will almost certainly destroy this pattern due to it dotting end of line codes all over the place.

In general use the CPU manages to make sense of all this and cope, but if we are PEEKing and especially POKEing then a system crash is very likely.

Why? Because if the end of line code is overwritten then the CPE does get confused and pulling the plug is usually the only way out. The end of line character by the way is number 118, the same as the NEWLINE code.

This issue I have given a simple screen manipulating routine and a REM extender. They are both relocatable and can be entered to any address you desire, making sure of course that they do not overlap. I give the length for each with the code.

Those who created our giant REM last month can simply RUN the loader program given, enter the address and type in the HEX CODES which follow the LET X\$=" lines, suggested addresses are given and for those who missed last month's article (shame on you) type in the program as written ADDING a line 1 REM ... with at least 100 dots following it. For you program A is essential, for the rest program A may prove of use later on.

PROGRAM A

```
2 REM PROGRAM A, ADDRESS 16514
3 REM LENGTH 22 BYTES
10 LET X$="2A7F48118348195E235
62B19117F48AFED52227F40C9"
20 REM ADD PROGRAM C HERE....
30
40
50
```

This is a program designed to extend a REM. To use it type in a line 2 REM ... followed by as many dots as you require to add to your existing line 1 REM. Then

RAND USR start_address (16514?). If you forget to add the 2 REM then your next line which may be a program line will be added to your REM and could cause a little confusion!

```
2 REM PROGRAM B, ADDRESS 16550
3 REM LENGTH 21 BYTES
10 LET X$="81D6822A8C48237EFE7
62BFAC688770B78B128F2C9"
20 REM ADD PROGRAM C HERE....
30
40
50
```

PROGRAM B

A little fun routine which simply turns everything on the screen to its inverse. Useful for effects or creating a black screen very quickly, try using in a loop such as:

```
10 FOR I=1 TO 50
20 RAND USR start_address (16550?)
30 NEXT I
```

This works by peeking at each screen position in the display file in turn, adding 128 to it and poking it back onto the display file, ignoring end of line markers of course.

```
2 REM PROGRAM C, LOAD IN CODE
3 REM TO REM, ADD AFTER A OR B

20 PRINT "LOCATION ADDRESS IN
DECIMAL ?"
30 INPUT A
40 FOR I=A TO A+(LEN A)/2
50 POKE I,16*CODE A$+CODE A$(2
)-476
60 LET A$=A$(2 TO )
70 NEXT I
```

Next month I will give a set of four scroll routines left, right, down and an up scroll that doesn't mess up the display file as Sir C's does. Meanwhile keep those neat little routines coming in and we'll start using them very soon!

HOW TO DISABLE THE "MERGE" FUNCTION

The simplest way to prevent anyone "merging" your program is to save your program as code. When you want to SAVE your program use the following method:

```
LET p=(PEEK 23637 + (256 * PEEK 23638) - 23551)
Next line : SAVE "prog name" CODE 23552,p
Next line: RUN
```

The only thing that changes now is that your program has to be loaded as CODE. When the program is loaded the computer's BASIC INTERPRETER will continue with the program straight after the SAVE command.

MURPHY'S LAWS (cont'd)

If you can distinguish between good advice and bad advice, you probably didn't need any advice at all.

A complex system that doesn't work is invariably found to have evolved from a simple system that worked well.

No job is so simple that it can't get screwed up.

The person who said that something can't be done should never interrupt the person doing it.

1986 IN RETROSPECT

- January In 1986 we saw good developments and bad. The uncovering of the Medic Disk Systems failure at a cost to some QL users and Silicon Express released the test facts on their external upgrade "a 25% quicker recalculation time".
- February The presentation of the Digital Precision long awaited Super Charge compiler, the Giga Soft Mouse, many low-priced 512K internal memory upgrades, the Mac-like Eidersoft Icon Ice package on ROM cartridge. The release of QL Scrabble. A budding games proliferation comprising of the advent of QL Jabber, QL Quboids, QL Classic Adventures, QL Pawn, QL Fictionary and QL Paint from Microdeal. A new version of QL Bridge from CP. An interplanetary Q Draw, the program used to draw the complex screens for Psion Chess and matchpoint.
- March The end of the announcements of the first annual Sinclair QL world awards. On the software front we saw Microdeal take the most innovative award with the Microdeal Flight Simulator. Best RAM upgrade went to Simplex. Among the disc systems Silicon Express stood out with the Micro Peripherals unit achieving honourable mention. In strategy QL Chess was at the forefront and as Arcade games go Lands of Havoc topped the list. Stevenson and Partners announced the coming release of a Maintenance Planning and Stock Control package And finally Pyramide's release of six new programs. Wanderer (a 3D arcade game, Nucleon, Painter, Remember, Turtle Logo, and Othello.
- April Nottingham-based Micro Control Systems released a RAM expansion disc and printer interface with up to 512K of additional memory. Also included is a special Utilities ROM including RAM disc, non-destructive windows with pop-up menus from software along with Multi-tasking facility which enables all 4 Psion packages to run concurrently and a format utility. Eidersoft and PCML announced a new range of disc systems including a Mouse with co-ordinated software consisting of Ice, ARTice, a disc database, a jotter notepad, various converter programs and a printer spooler on disc. The Executive package has RAM disc and CHOICE multitasking software.
- May The announcement of the creation of the THOR development an upgrade of the QL, compatible, incorporating Eidersoft/CST improved software and a 128K ROM including a revamped version of Qdos and J Basic and several software packages including the Ice environment. Tony Tebby the author of Sinclair Qdos announced his plan to produce the Q.L.T.. A full MC68000 microprocessor with floppy disk, a minimum of 512K RAM, a separate keyboard, and improved software. Q.L. compatible it is to be released in early 1987 at approx. \$1000.00 Canadian.
- June Swansea-based Astrocom introduced a new modem for the QL, the Astrocom 1000. A multi-standard intelligent modem, providing auto-dial answer and printer control facilities that is American Bell tone upgradable. It is capable of handling its own data transfer with its own on-board Microprocessor. It includes a 6k printer buffer and can be used as a serial to centronics interface. Talent released its CAD program, TechniQL and Digital Precision, three new program, Media Manager a Disc and Microdrive recovery system and repair facility with import capabilities for differently formatted discs, i.e.: for data transfer from an IBM PC disc to a microdrive, Professional Astrologer, and EYE Q a graphics utility comparable with the more expensive CAD packages.
- July Amstrad and CST sabre rattling over intellectual property rights were the QL motherboard was concerned. CST is not marketing the QL boards they are buying and upgrading them. Quality Assurance from QL Peripheral distributors was agreed upon by those concerned and can now be recognized by Stickers on products. The Sandy QXT a 640K QL+ made its debut.
- August Sinclair agreed to sell Microdrives, assuring a future supply of cartridges for distribution. Rainbow announced the completion of an IBM style keyboard for the QL. Qflash of West Germany released version 3 of its RAM disc and toolkit software.
- Sept. Software to connect the Psion Organizer became available from Transform. Ultrasoft released several new utilities. Toolbox II provides a RAM disc, Multitasking clock and system information display to screen, a backup utility, and a fast file handler. SD Microsystems released The Small Traders Pack and a small business' package to keep a check on cashflow credit control, stock control, and address management along with other special features for promotional work. Digital Precision dropped its licence fee for its Supercharge compiler. Pyramid released Graphic Toolkit, it includes 70 extensions to QL basic, it is also Supercharge compiler compatible. ABC released GIGA CHROME, a graphics program needing at least 128K of expanded memory including a Spectrum to QL screen converter.
- October Miracle Systems gave us the Mini Modem possibly the worlds' smallest modem, A 1200/75 and 1200/1200 baud with software. Schon Keyboards released a full travel professional keyboard that mounts where the original keyboard sits for 54.95. Rubicon Computer Systems released a 3D CAD program called Viewpoint. Desk Top Publishing came of age with GAP Software's introduction of FRONT PAGE.

November Pyramide introduced the first video digitiser for the QL. It occupies the expansion port and input is a normal video camera signal and does not require expansion RAM to process a picture. Pictures can be reproduced in Black and White, gray scale or Colour of 125 shades. A new machine code monitor from Talent featuring single stepthrough superbasic with any number of conditional and unconditional breakpoints. User selectable variables can be displayed with the option of reading and adjusting the values and a cross reference listing. The Quill Adventure Writer was converted for QL programmers. Digital Precision released Better Basic Expert System, a program that examines any basic program providing a range of options for creating a new structure for preparation for compiling with Supercharger or as a better structured program. The Editor, a very fast full feature text editor. It will produce command files for repetitive processing and many other features including compound commands for extracting information for documents. Maurice computers gave the QL a voice. QFlash Ram disc was out stripped by the new Ultarsoft RAM disc becoming the fastest RAM disc, including a new display toolkit and A compressor toolkit with seven new keywords. Sector Software released QL Taskmaster, a true multi-tasking program that allows all integrated software to independently and simultaneously work together. Also included is a disc organizer and special calculator output functions.

December the promotion of a New Sandy upgrade the Futura complete with AT style keyboard and many other super features.
The new and superior Compiler TURBO made its advent.

ZENITH Monitor COPAL WriteHand Model 1200 Printer Comments

"I recommend the Zenith monitor (green or amber) available from Exceltronics (Toronto) for \$135, should anyone be in the market for a new screen. I am also pleased with the COPAL WriteHand model 1200 as a printer with very good value at \$329.00. It has a unique "upstream" tractor system that saves wasting paper like downstream paper systems do, and is adjustable where the platen drive systems are not. Also, it is available with a serial port built-in if you special-order it. Otherwise they will send you a serial/parallel adaptor for an extra \$95. It gives 24 cps in near-letter-quality and 120 cps in draft. Another good feature is the ease with which the print head can be changed by the user....."

Excerpted from a letter to GFC from Larry Sadler, Toronto; a club member, and QL owner.

QL NOTES letter from a member

I received a letter from one of our members, a QL owner, who lives in Edmonton, Alberta, which seemed to me would be of interest to other QL owners. I quote in part:

"....I've joined QUANTA over in England as I think I may have told you, and I'd recommend joining to any QL owner. In fact, I'd recommend that TTSUC join as a unit and get the back issues of the QUANTA newsletter. There is a Howard Chase of St. Johns who contributes quite often and the last issue was filled by some people from Kenya. Well, I've said my piece about QL Users and Tinkerers Association.

"I've been running my QL with expanded memory and a ramdisk for about a month now, very nice and very quick. I ordered the memory expansion from Sharp's, Rte. 10, Box 149, Mechanicsville, VA. USA, and have had good service from them. The ramdisk I ordered direct from Miracle Systems in the UK as they had made the expansion. They sent me the ramdisk microcart as a demo so I didn't have to pay any duty which was a nice thought on their part. Service was quick too, almost as fast as from the States. When I heard that there might be a bulletin board for T/S users I thought I'd try out a modem and found out the truth that one needs a modadapter. I ordered one in November from Knighted Computer by mail order and though the bill has come in the unit hasn't so I guess I'll have to call and check on the order. I've used the modem at work on a PC clone and it's been fun, but nothing on the local boards about timex/sinclair stuff."

"....SHARP'S is bringing them (QL WORLD magazine) into the US and offering a subscription at around \$39 US. which still beats the 40 Pounds that is the rate from the UK. I picked up the program "The Editor" but haven't used it much, I'm still trying to figure out if I can get it on my ramdisk. It looks impressive, and the programmers say it will be extremely useful to "...anyone involved in any type of program development, especially high level languages such as C, Basic, Pascal, Archive, etc....". A heavy duty text file manipulator rather than another word processor. I'll wade my way through it in a while."

Quoted from a letter by Francis French to GFC. Frank works for THE ACCESS NETWORK, the alberta equivalent to TV Ontario. I mentioned to Frank that I once saw his name on the credits of a program produced by ACCESS. Ask me for Frank's address if you are interested in writing to him, George Chambers

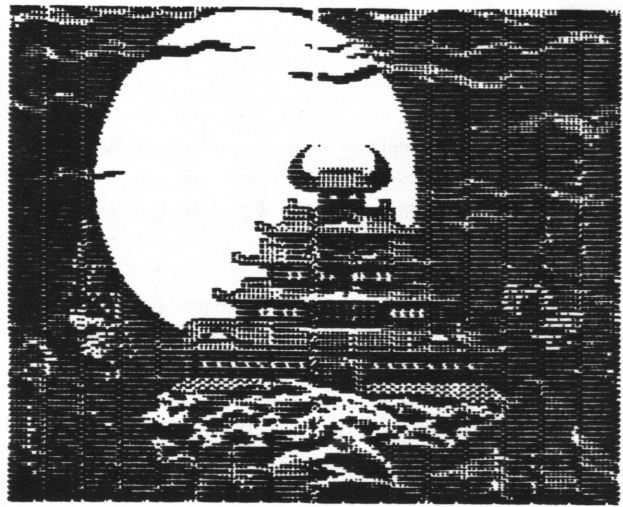
Have you ever wanted to have some REAL pictures for your 2068? I don't mean your usual pictures from your typical drawing programs but real pictures, such as your face, for example. This tutorial will show you how to hook up a video camera to your 2068 with a fairly simple hardware attachment.

I chose to wire-wrap my prototype and it worked fine but be sure to keep wires as short as possible in the op-amp section of the circuit. My version lies in the cartridge port but it would be easy enough to transfer to the rear connector if desired. Other than that I will leave the actual construction up to you.

The circuit can be divided into two parts. The interface and the digitizing circuitry. The interface section simply provides 8 inputs and 8 outputs. Only 4 outputs are actually used along with 2 inputs. The extra lines could be used for your own projects. I chose to map the interface to IO port 00 but this could easily be changed to another port if it interferes with another piece of hardware. Small software changes would have to be made to accomodate for this change. The digitizing section of the circuit essentially separates the video sync signal and the actual picture data from your video source and by use of the LM311's, the picture is converted to a digital format. Then through timing accomplished by the 74LS74N and the LM556, the picture is sampled at appropriate times to collect the image.

It is important to note that you must have a still video source as it takes 5 seconds to collect one image. Also, your video source must be capable of driving a monitor. RF video such as from a ZX81 will NOT work. A VCR or video camera with a MONITOR OUT jack will work. For testing purposes, I recommend another computer with a monitor output plug or a VCR with shake-free freeze frame. There are three controls on the digitizer. The BRIGHTNESS knob sets the brightness of the image. The STRETCH knob allows you to horizontally expand or compress the image. Finally the SYNC knob is used to place yourself 'in sync' with the incoming video source.

I will leave you with the schematic for now and in the next article, setup, theory and use will be discussed. In the meantime, I suggest that you obtain the driver software from the club library. The program is called EyByNi.B1. If you still aren't convinced of the usefulness of this project, check out the picture I have taken from KARATEKA, an Apple II+ game.



Examples of the Digital Imagizer output

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A NOVELTY
TS 2068

An interesting and rather "pretty" bug exists in the way the DRAW command executes its arc-making facility.

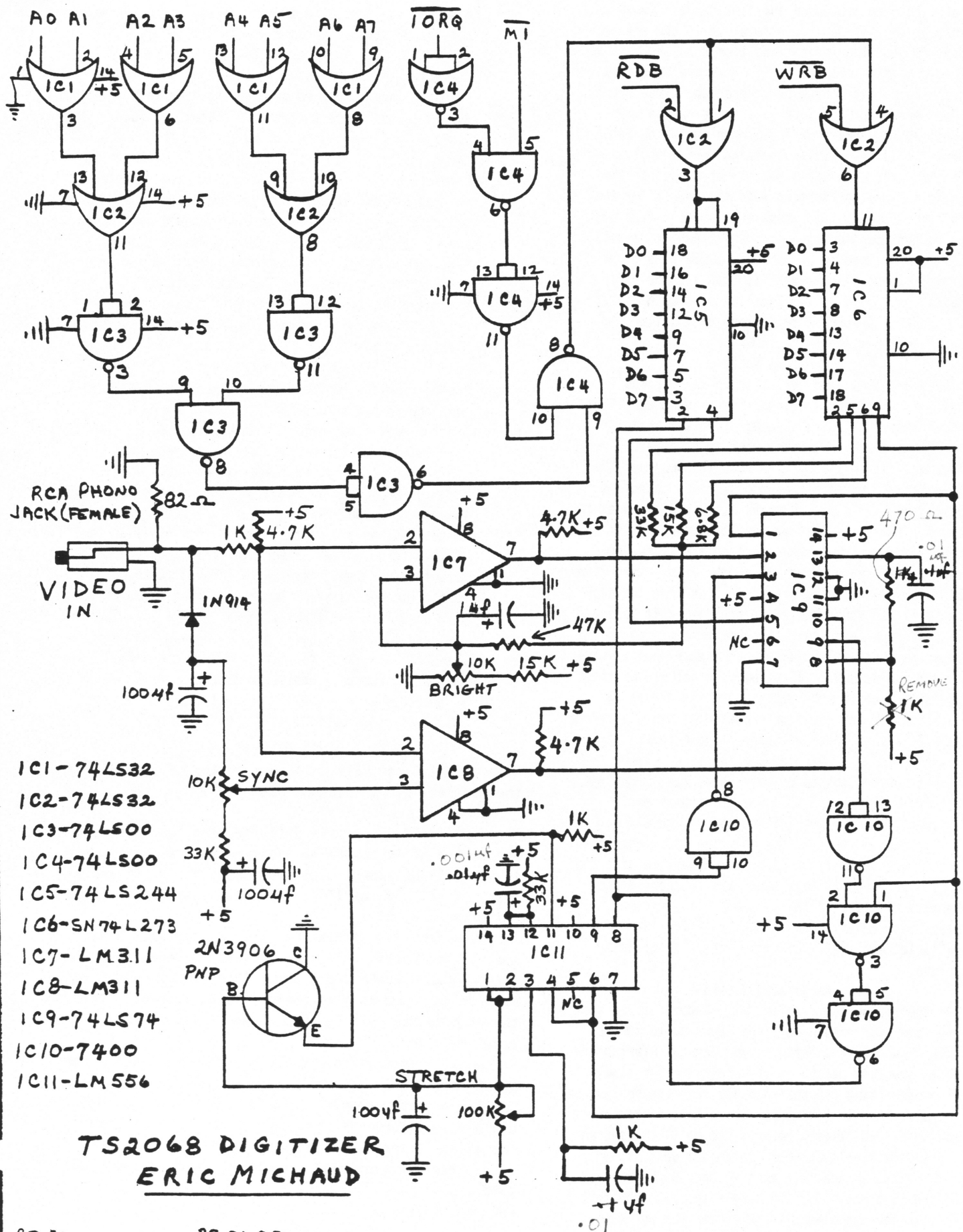
Try this short routine:

```
10 INPUT "Any odd number";n
15 CLS
20 PLOT 75,50:DRAW 100,100,PI *n
30 GOTO 10
```

Having RUN this program, try adding the following line. 5 OVER 1

Try inputting these numbers: 253, 237, 375, 287, 157, and EXPERIMENT!!

From the L.I.S.T. newsletter



REDRAWN BY GFC 87 01 03

Another issue and more fun typing with my now favorite word processor and disk combo - Tasword II and Larken 2068 Disk interface. It is now a 4 second wait to load the program and 1 or 2 second wait to load any file I have created. Here are some tips and techniques that I have discovered about Tasword II.

The version of the program I am using has been modified to operate on the Larken system by Peter Haskel. All the regular features work identically to the original with the exception of Merge. In the cassette version, merging puts the code after the resident file. On my setup, the resident file must be pushed down (using Symbol shift AND) to enable a new file to load in at location 33280 (the first line of text). The merged file can then be block marked and moved to the location it should be. If you have to prepare form letters or a letterhead you can merge-move and print them.

Random Calls

There are some rand usr calls in the program to note as they do neat things. One is Rand usr 59081, this pokes ASCII 32's (spaces) into the whole workspace. This is one you want to be carefull with! The next is usr 64330, this runs the program. The file Tasword creates does not have any charcters less than (ASCII 32). A blank line is just 64 spaces padding the file. This may explain some of the strange happenings, when you load a file recieved from any bulletin board via modem. After every line of text, a carriage return and a line feed character is sent. The wonderful world of Tasword II pads all it's lines with spaces. The code of the program knows how to handle blanks, but freaks when it sees a carriage return or line feed. To get rid of these you will need to poke blanks into the offending locations or jab the file repeatedly with your space bar. I like my space invaders in game form.

Did You See That?

I mentioned a way to do this in my last Droppings column. I am looking at a way of finding and replacing from within the program and should have a bit of code next time. The solution of course is to filter your text files as you receive them with the option in Mterm II that does this. I changed the version of Mterm II in the XLATE table section to substitute a hex 20 or an ASCII(32) for the ASCII(10) and ASCII(13), line feed and carriage return.

Marginally Missing

Another thing that happens with Tasword II is that you lose your margin settings when you go to the STOP MENU. All the defaults you have on startup are reset when you return to the program after a save. This same thing happens when you find and replace in one step. A file like this, where I have the left margin set to 52 gets reformatted to 64 columns and right justified even when you do not want it. So after this happens, you must go back up to the top of the file and reset the margin and chop the text up with the symbol-shift AND. Great fun but there must be something better.

Big Print Small Printer

Before I get too far from my roots, I must pass on a suggestion that I have used for some time but may not be too obvious to some people. It involves the use of the 2040 Printer and Tasword II. The character set Tasman uses is something less than readable when displayed on anything less than a 14" B+W TV or on George Chamber's RGB monitor (lucky him). My solution is to use my 12" B+W TV and use the Sinclair characters available with the Extended C function. You then get a 32 column display which is readable and to see what you print, you just switch back to the Tasman set. If you set your right margin to 32 (Extended D), you now have a highly readable and static display that, provided you stay in the Sinclair character set mode (Extended C) is printable on the 2040. Great stuff for reading without the aid of the new Sinclair Pocket Electron Microscope (\$ 99.95).

Big Print Elsewhere

To my complete surprise the instructions that come with the Tasman printer interface are correct. My problem mentioned last column, has been solved. As the saying goes "When all else fails, read the instructions!". How true. The Tasman interface software says send a CHR\$ 27 to the printer to allow the use of a Control code outside of the printable range. The range of printables is from ASCII 32 to 127. So for example, to send the printer the code to line feed you would send LPRINT CHR\$ 27;CHR\$ 10;. To send a command to start compressed print, you would send LPRINT CHR\$ 27;CHR\$ 27;CHR\$ 27;CHR\$ 20;. These commands work on my combo of DMP 105 and Tasman CPI and 2068. The thing that threw me was the CHR\$ 27 has to precede any code below 31 or above 127. When in doubt toss in a CHR\$ 27 or read the instructions whichever comes last. 1/15/87

REMX DRIVES

Excerpted from an article in the business section of the Montreal Gazette (about June 1986).

"....Hull said Comterm is still feeling the effects of the demise of its Hyperion transportable microcomputer in the fall of 1984, which resulted in a financial loss of \$51.99 million for the year ended the following Jan. 31.

Apart from its continuing impact on the balance sheet, the Hyperion hangover includes a legal dispute with US-based Ex-Cell-O Corp., the manufacturer of disk drives used in that micro. To date, Hull said, the dispute has cost Comterm close to \$1 million in legal expenses.

About 18 months ago, Ex-Cell-O sued Comterm for \$20.5 million U.S., alleging breach of contract. Comterm promptly counter-sued for \$70 million U.S., claiming failure of the REMEX drives initially installed in the Hyperion.

The trial is scheduled to begin next June, Hull said....."
retyped by G.F.C.

BOB'S NOTEBOOK

Cameron Hayne's excellent BASIC compiler pretty well solves the need to learn to program in Z80 machine code. Once you have a program tested and working well in BASIC, compilation is a snap. Well! Almost a snap. There are still some challenges and a few problems to be solved and lessons to be learned. Here are some of the tricks I have picked up that you may find useful.

1. If there are any embedded attributes in a line which is being acted upon by OPEN#2,"p" (ie, to direct the normal screen output to the 2040 printer) then all may not work well even though it was OK in BASIC. Take the following example:

```
1000 PRINT#1;AT 0,0;INVERSE 1;
    "Press ENTER to stop the
    printer"
```

In BASIC at the end of the line the attribute INVERSE 1 automatically resets to INVERSE 0. In Timachine compiled code, this did not happen and it was found necessary to add INVERSE 0 at the end of the line. Then the printer copy was correct while before (without the INVERSE 0), the printer copy was in INVERSE characters from that point on.

2. If you use the Larten DOS and you have menus on your disks and if you use POKE 23658,8 to set the input to receive upper case letters, then remember to reset 23658 to 0 before loading a compiled program that expects lower case inputs. Otherwise, the compiled program will hang up.

3. Saving your program variables is easy, too! Look at this example:

When compilation is completed, the printer shows:

```
M/C: 7218 BYTES
+ 13374 BYTES FOR M/C VARIABLES
(BASIC WAS 6904 BYTES)
```

```
SAVE "m/c"CODE 53682,7218
LOAD "m/c"CODE 40308
```

When the m/c is loaded back to the correct address (40308 here), RANDOMIZE USA 'address' to start the program running. This program would now be 20592 bytes long (13374+7218); the 13374 bytes are reserved for the variables where data can be input. When the data is entered, it is then only necessary to save the code as follows:

```
SAVE "name" CODE 40308,20592
```

or the equivalent using LDOS.

4. Timachine does not support ON ERR but it can still be used in a loader or menu program which calls the compiled code. Just before the call (say, RANDOMIZE USA 40101), insert ON ERR GO TO 9000 or whatever line you choose and then add the following:

```
9000 ON ERR RESET
9010 PAUSE 30
9020 ON ERR GO TO 9000
9030 ON ERR CONTINUE
```

At the program start line, insert an ON ERR RESET and any other likely normalizers (eg, CLOSE#2 if your code was in an OPEN#2,"p" mode).

5. Finally, using the LIST and LINE compiler directives, it is possible to alter some of the code after the BASIC program has been compiled. For example, you find that the line number in a GO TO statement is wrong and you want to change it and you don't want to recompile the thing.

Providing you had used LINE when compiling your BASIC and as long as you had made a printer copy, you could consult the copy and find the address of the line containing the GO TO statement. Let's say it is 44117; while you are at it, get the address of the end of that line, say 45321.

Break the start address into its LSB and MSB components (use RANDOMIZE start addr. and PEEK 23670 and 23671). Write these down. Examine the bytes from the start address of the compiled line to the end and look for the LSB and MSB values. To do this, you can use a loop: FOR I=44117 TO 45321: PRINT I, PEEK I: NEXT I. Examine the values; when you have found the addresses containing the LSB and MSB, you can POKE the new LSB and MSB of the address of the revised line number you want after the GO TO.

That may sound complicated, but it really takes longer to explain than to do.

Another example: Supposing after entering a mountain of data into a big array (eg, R\$(1000, 13)), your compiled code has a glitch in it and has to be recompiled. What! Enter all that data again! Maybe not. Use REM ! LIST to locate the start address of the program variables. Say it is 47526 and end of the program variable area is at 60899. Using your glitched compiled program save the data from 47526 to 60899; load in your newly compiled BASIC and then load back your data.

Bob Mitchell Nov 1986

The RGB monitor on my 2068 provides excellent colour but, recently, I experimented with displaying a SCREEN\$ on the family colour TV. This led to the discovery of several problems and the opportunity to find solutions to them.

Rather than uproot my 2068 from its web of cables and peripherals, I ran a long, shielded cable from the TV jack of the 2068 to the TV antenna terminals. With the TV being about 12 feet away, it was no surprise that the signal would have interference. Sure enough... the alphanumericers were mere blobs lost in a blizzard of noise. I guess the 12' of cable and the home-made external keyboard and uncased modem and etc., etc. all contributed to the interference which was never seen on the RGB monitor.

An amazing discovery saved the day! Enter... the VCR! The RF input on the VCR, where a camera is normally plugged in, is compatible with the MONITOR jack on the 2068. By connecting these, and setting the VCR input to LINE or CAMERA, the clean monitor signal is converted to a composite signal in the VCR and sent to the TV. The result was a very clean SCREEN\$.

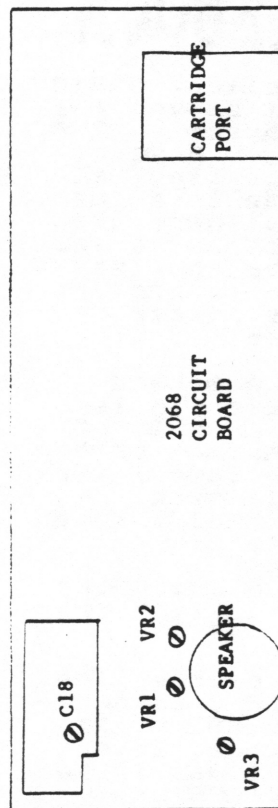
However, all my problems weren't solved yet. Colours were the wrong shade and fading in and out. This apparently is a problem with certain TV's having a built-in converter and automatic tuning. Fortunately the 2068 has internal controls that can be adjusted to overcome the problem. Following, is a procedure that worked for me. It changes the monitor and TV signals but not the RGB output. NOTE: Before adjusting anything, note the position of each control and record it so that you can always set them back to original settings.

Now all I need is a wireless joystick for a complete remote station. I welcome any plans.

FRED SCHAKEL
London, Ont.

1. Run this short program to display colour bars while making the following adjustments:

10 FOR q=0 TO 7:PRINT AT q*3,3; PAPER q;" (20 spaces) ";;
READ a\$: PRINT " ";a\$; NEXT q
20 DATA "Black", "Blue", "Red", "Magenta", "Green", "Cyan", "Yellow",
"White"
2. Do this step only if you have no colour. Locate C18 inside the shielded can. With a plastic screwdriver, adjust for colour. Too far CW or CCW will give you black & white.
3. Perform this step only if sync and/or brightness is off. Adjust VR1 for normal brightness. Too far CW is too bright and too far CCW darkens it and sync goes haywire.
4. Adjust VR2 and VR3 last in order to change colours. Turn them slowly while watching Magenta and Cyan. These should have different hues from Blue and Red. VR2 turned CW or VR3 turned CCW makes Magenta turn Blue. Similarly: VR2-CCW or VR3-CW makes Magenta turn to Red.



FRED SCHAKEL
London, Ont.

THE ART STUDIO
Rainbird Software
London, England

Cost: £14.95
(dependant upon company)

Features:

- *Windows-icons-pull down menus-pointing devices
- *All info on-screen
- *Works with keyboard, Kempston and other Joysticks
- *Mouse option
- *Dot matrix printer dumps-5 sizes-grey scale
- *Supports 17 Centronics and RS232 interfaces
- *Save and load to cassette
- *Full control over attributes
- *16 pens, 8 random sprays, 16 user definable brushes
- *Attribute grids
- *Undo facility
- *Windows can be cleared, inverted, cut and pasted, enlarged, reduced, squashed, stretched flipped and rotated
- *Solid fill
- *Textured fill-32 user definable patterns include stipples, hatches, bricks, roof tiles etc.
- *Wash texture facility
- *3 levels of magnification with pixel edit, pan and zoom
- *Text-9 character sizes, 2 directions, sideways and bold
- *Font editor-clear, invert, flip, rotate characters or whole font, copy ROM, capture font from window
- *Save and load fonts to cassette
- *Lines, rectangles, triangles, circles, rays
- *Snap + elastic shapes

Remarks:

The 57 page manual describes each of the above features in depth and shows their operation through various examples that leave you with the thought that there is virtually nothing that this graphics package could not do. Not far from the truth as far as I'm concerned.

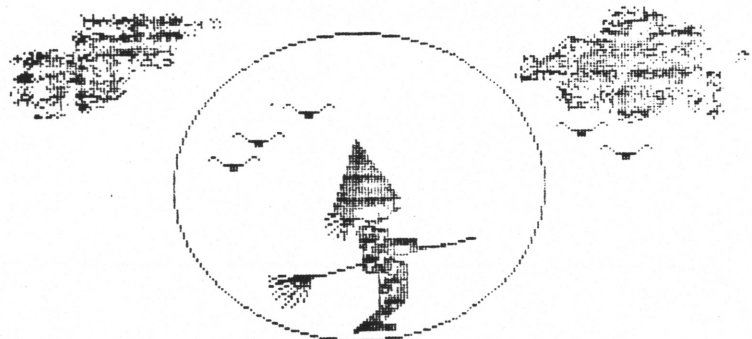
If you have a joystick such as the Kempston or a Mouse, drawing a picture takes from just a few minutes to an hour depending upon the complexity of the drawing and the advanced planning that went into it in the first place. Of course there is no reason that you couldn't use this package to doddle. I've appended a couple of samples to show a number of features, particularly fill and brush.

The particular facilities involved in this package

allow you to draw a complex picture without ever once touching the keyboard. This compares very well with other packages that require keyboard control, programmed functions and a great deal of non drawing actions to produce rather simple pictures. For instance, LEONARDO is a study in complexity in its programmed shapes and constant multi-press key functions in order to complete a picture.

What ultimately sold me to the ART STUDIO was not only the drop down menus but the thought that went into the package to make it as responsive to the user's needs as possible. Which other Graphic package caters to multi joystick control and 17 printer types? NONE! Future reviews will cover LEONARDO, MULTI-DRAW 2068, THE ARTIST, PAINTBOX, SCREEN MACHINE and any other graphics program that I have in my library. Finally, after the above reviews, I will produce a comparison chart of all the graphics packages for easy reference. If you have any particular questions concerning this article, please feel free to write in and ask. I'll reply by the next issue!

R. Mulder



Fright nite
by Roelof



The Pharaoh's Tombs

by Roelof Mulder

Do you want to have a ROMSWITCH in your 2068 which can switch between the TIMEX and SINCLAIR modes for under \$35.00 Canadian?

I recently ordered a "ROMSWITCH" from Daniel Roman and it only cost \$10.00. The board comes completely assembled, less the Sinclair ROM and a S.P.D.T. toggle switch. You just have to plug the Timex ROM into one of the sockets and the Sinclair ROM into the other. You also have to solder the three control wires to the switch. You also have to drill a small hole on the back to hold the switch. My switch is next to the video output.

You can order the ROMswitch board from:
Daniel ROMAN, Apt 1111, 96 HAVENBROOK Blvd, Willowdale,
Ontario M2J 1A9phone: 491-7493

You can order the Sinclair ROM from:
ZEBRA SYSTEMS, 78-06 JAMAICA AVE., WOODHAVEN, NEW
YORK 11421, USA.phone (718) 296 2385
During the summer, prices were \$10.00 each or 2/\$15.00
US. Phone or write to get more information.

The switch can be obtained from:
GENERAL ELECTRONICS, 5233 YONGE ST. at \$1.49 each.

by Renato Zannese

I'm not sure whether this has the answer to putting the FASTEXT 80 into graphics mode, but in response to the query Art Johnson, a club member luxuriating in Florida for the winter, has sent me a four-page item from S/C entitled "HOW TO USE 8 BIT IMAGE MODE ON SMITH-CORONA DOT MATRIX PRINTERS". I can send anyone a copy if you are having a problem.

Music on the 2068?? I think the reason there is very little activity in this area is because of the weak sound emanating from the 2068 speaker. Now, if you hook a small amplifier (Radio Shack 277-1008) onto the MIC output of the 2068 you will get the BEEP sound with good volume but (surprise!) not the other sound channels. What we need is an article on how to safely tap onto the 2068 speaker so that we could get all the sound into a larger amplifier/speaker system.

One of our past members wrote a utility for the SOUND function called "SOUND PRO", which is on TAPE 3 in our tape library. There is no documentation (a common failing of programmers!), and the program does require some polishing up. Anyone interested?

A BBS for the TS2068?? There is a program called TINYBOARD, for the TS2068. It was written by Randy and Lucy Gordon, of the Cincinnati T/S Users Group. It is in the public domain and is in our club program library. Several other Timex users have been at work adding enhancements to it. Say, there's a project for a LARKEN owner; expand it's capabilities by adding a disk drive!!

G.F.C.

Postmaster, if Undelivered Return to :

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